Downloading Data from the STORET Warehouse:

An Exercise

November 2002

This exercise walks you through the steps necessary to download monitoring data from the STORET Warehouse into a text format and import the data into a spreadsheet to chart monitoring trends. STORET data can also be easily imported into statistical and GIS software packages for further analysis, but is not covered in this exercise. Please contact STORET Technical Support at 1-800-424-9067 for comments or questions.

Part 1: Download the Data

For this example, stream monitoring data for Jefferson County, Kentucky will be used. Starting from the main STORET website: http://www.epa.gov/storet:

1. Click the **Obtaining Water Quality Data** link.

2. To enter the Modernized STORET Warehouse, click the **Browse or Download Modernized STORET data** button at the bottom of the screen.

3. Let's start with a simple geographic query by browsing for data in Jefferson County, KY: click the **Country, State/Province, County** button.

4. Select "Kentucky" and click the **Show Counties** button.

5. Select "Jefferson" and click the **Show Stations** button. You may have to wait 30-45 seconds for the next page to appear.

6. Accept the "Select All" defaults for the *Organization* and *Station* types and click the **Show Stations** button again.

7. Note the list of stations available in Jefferson County. Scroll all the way to the right of the window and observe the "Visited" column. Stations that have not been "visited" indicate that sampling information does not yet exist at that location. Think about reasons why a station may not have had a site visit yet.

8. Let's choose a station that has been visited so we can find some sampling data. Select Station ID "OR3804M" and click the **Station Visits** button.
   Note: If you were to click one of the **Download Site Descriptions** buttons, you could download all the descriptive information about that monitoring station (i.e. lat/long, site name, etc.), but there would be no sampling information to go with it.

9. Accept the default dates and click the **Show Station Visits** button. You may have to wait 30-45 seconds for the next page to appear.

10. Note the list of site visits to this particular station presented in chronological order. Select, by holding down the Shift key and clicking your mouse, the last 3 Station Visits, all with an "Arrival_Date" of "01-01-2001", and click the **Show Activities** button.

11. This next list shows the various types of activities performed at a station. Since there's just one type listed, accept the "Select All" option and click the **Show Activities** button.

12. We want to download all the sampling data at this station, so choose "Select All" and click the **Download Results** button.

Note: If you were to click one of the **Download Activities** buttons, you could download all the descriptive information about that monitoring activity (i.e. sample type, collection procedure, etc.), but there would be no measured results information to go with it.

13. Click on the web link "Download your file now…"

14. The STORET database generates a delimited text file and displays it as a web page. Choose "Save As" from your web browser and save the file as a text file named "**louisville_mod.txt**". Make sure to save the file somewhere where you can find it easily. We're finished with the web browser at this point.

Part 2: Analyze the Data

Now we're going to import the downloaded data into a known software package. Most existing analysis software has the ability to read delimited text files. Open Microsoft Excel. (Note: This exercise was written using MS Excel 2000. Some features may be different for different versions.)

1. Choose File->Open and browse for the text file you just downloaded from the STORET Warehouse. Open the file "louisville_mod.txt".

2. Excel recognizes that this file is not in MS Excel format, and provides a wizard interface so you can define the format for Excel. On the "Step 1" window, select the "Delimited" radio button under "Original Data Type" and click **Next**. On the "Step 2" window, check the "Other" check box under "Delimiters" and insert a tilde (~) in the open field then click the **Next** button.

3. On the "Step 3" window, accept the data format defaults and click the **Finish** button.

4. Allow MS Excel to import the data into the current open worksheet.

5. Excel can't immediately recognize the proper column widths, so we must help Excel do additional formatting. Select the whole worksheet. Clicking the gray cell in the upper-left corner of the worksheet can do this.

6. From the main toolbar choose Format -> Column -> AutoFit Selection.

7. Browse the data by examining the column names and rows of data.

8. Now we're going to use MS Excel to draw a graph of some of the data. First we need to sort the data to group the measured parameters together. Select the whole spreadsheet again.

9. From the main toolbar choose Data -> Sort.

10. Using the Sort options, Sort by "Characteristic Name" (ascending), Then by "Act Start" (ascending) and click **OK**. In STORET, a "Characteristic" is the thing that is measured, and the "Act Start" is the start date of the monitoring activity.

11. You should now see all the measured parameters grouped together and in chronological order.

12. On your worksheet, highlight the 3 Nitrogen, Nitrate values under the "Res Val" column (cells AG47-49).

13. From the main toolbar choose Insert -> Chart or click the **Chart Wizard** button. Select Line under "Chart Type" and click **Next**.

14. Notice that the Nitrate values appear along the Y-axis. Now we want to add the dates along the X-axis. Select the **Series** tab and click the button at the end of the blank text field next to "Category (x) axis labels:".

15. On your worksheet, highlight the 3 corresponding Activity Start Date values under the "Act Start" column (cells E47-49).

16. Return to Chart Wizard and click **Next**. Enter in the following to describe the graph:

    a. Chart Title: Winter/Spring NO3 Values
    b. X Axis: 2001
    c. Y Axis: mg/l

17. Click the **Next** button and then click the **Finish** button.

**** Feel free to experiment with plotting other values of your STORET data!!!